

## JSAF Declass/Release Instructions On File\*

AIR FORCE REGULATION  
NO. 55-13  
ARMY REGULATIONS  
NO. 385-70  
OPNAV INSTRUCTIONS 3710.18A

DEPARTMENTS OF THE AIR FORCE,  
THE ARMY, AND THE NAVY  
Washington, 25 June 1959

## Operations

## RELEASE OF FREE BALLOONS

	Paragraph
Reducing Hazards -----	1
Free Balloon Flights To Which These Regulations Apply -----	2
How To Obtain Authorization for Conducting Balloon Flights -----	3
Minimum Requirements for Balloon Flights -----	4
Communications -----	5
Tracking Failure--NOTRAK -----	6
Flights Entering Airspace of Foreign Nations -----	7
Reports Required -----	8
Waivers -----	9

*This regulation prescribes procedures and restrictions applicable to operations involving the flight of free balloons made under the auspices of any agency of the Department of Defense. This regulation is designed to preclude the possibility of any flight entering over the territory of any nation without prior authorization/notification and provision of all necessary safety precautions.*

**1. Reducing Hazards.** Compliance with these regulations in no way relieves the launching organization from the responsibility of conducting the complete operation in such manner as to reduce the air and ground hazard to the absolute minimum practicable..

**2. Free Balloon Flights To Which These Regulations Apply:**

a. Any unmanned balloon flight which involves any one or more of the following shall be governed by the terms of these regulations:

- (1) A balloon which is reinforced in any manner.
- (2) A balloon carrying any single unit with a weight in excess of 6 pounds. Parachutes shall not be included in the weight determination.
- (3) A balloon carrying a total weight in excess of 12 pounds. Balloon fittings, support rings, valving devices, cable, antenna, etc., will be included in determining the total weight. Parachutes will not be included in the weight determination. When total weight is between 6 and 12 pounds,

the load must be separated into two or more groups such that no single group weighs more than 6 pounds and no two groups are closer than 10 feet to each other. The line or cable used for spacing the groups will have such strength or such fittings that the imposition of a 50 pound force will separate the groups.

b. The following types of balloon flights are exempt from all provisions of this regulation except those of paragraphs 3, 4e, 4f, 4g and 7.

- (1) Any balloon flight which during its entire flight, from release to impact, never leaves an area officially established as restricted or prohibited with respect to aircraft operation. These flights are exempted from provisions of paragraph 4e if command cut-down equipment is utilized to insure that these flights do not leave the restricted area.
- (2) Any balloon flight originating and terminating outside the U. S., its territories and possessions and the Pan-

\*These regulations supersede AFR 55-13/SR 385-350-1/OPNAVINST 3710.18, 5 August 1954.

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ama Canal Zone and which never during its flight can enter the air over the U. S., its territories and possessions, and Panama Canal Zone.

c. Balloon flights with a cruising altitude of less than 44,000 feet are not specifically covered by the provisions of this regulation. Authorization for such flights will be sought in accordance with paragraph 3. Specific instructions consistent with the intent of this regulation will be issued when authorization is accorded.

d. The following types of balloon flights are exempt from all provisions of these regulations:

- skyhook type - not for use*
- (1) Expansible balloons which ascend continuously to bursting altitude and which carry meteorological equipment (e.g. radiosondes) used routinely for atmospheric observations, (load not to exceed those specified in paragraphs 2a(2), 2a(3)).
  - (2) Any balloon flights which do not involve any of the conditions set forth in paragraphs 2a, b, and c above.

### 3. How To Obtain Authorization for Conducting Balloon Flights:

a. The proposed operation of balloon flights which fall under the provisions of paragraphs 2a, b, and c will be described by submission of the information as applicable outlined in attachment 1, together with any other pertinent information. The material so submitted is termed the operational plan for the balloon operation, or proposed amendments to operational plans. It will be forwarded to the sponsoring activity or appropriate operational command for review and approval. When flights are planned which will, or may enter the air over the United States, its territories, and possessions, the plan will be submitted as follows:

- (1) Army—to the appropriate Army Area Airspace Office.
- (2) Navy—to the appropriate Navy Regional Airspace Office.
- (3) Air Force—in accordance with AFR 55-103.

b. Upon receipt of approval of the operational plan, the Commander, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado, will be notified of the details and final approval of the operational plan. He will, in turn, inform the Commanding General, Army Antiaircraft Command.

c. It should be anticipated that normally a period of 60 days is required for obtaining approval of balloon launching programs.

### 4. Minimum Requirements for Balloon Flights:

a. *Launch Area.* The launch area will be so selected as to minimize interference with air operations from the time the balloon leaves the surface to the time it reaches 44,000 ft. (Altitudes referred to herein are standard pressure altitudes.) Accordingly, areas of high density air traffic, positive control airspace and areas of high population density should be avoided. Consideration shall be given not only to aircraft flights originating or terminating in the area but also to aircraft overflying the proposed launch area.

b. *Flight.* All balloon flights shall be so conducted as to insure:

- (1) A minimum average rate of ascent between the surface and 44,000 ft. of 500 ft. per minute.
- (2) A minimum cruise altitude above 44,000 ft.
- (3) The balloon and load shall be separated prior to penetration of the 44,000 ft. level on descent.
- (4) A minimum descent rate of 500 ft. per minute between 44,000 ft. and the surface.

c. *Termination Area.* Balloon flights will be planned to prevent descent or impact in an area which does not meet the qualifications set forth for a launch area. Balloon flights shall not be conducted when the forecast termination area approaches within 100 miles of an unqualified area unless positive command cut-down devices are incorporated.

#### d. *Launch Conditions:*

- (1) No balloon will be launched unless all the following weather conditions prevail in the launch area:
  - (a) Not more than scattered clouds (5/10 cloud cover) at any altitude.
  - (b) Visibility of 5 miles or more at all altitudes up to 44,000 ft.
- (2) Unless the operational mission demands otherwise, balloon flights will be planned so that launch and cut-down shall occur within daylight hours and with weather conditions at cut-down, meeting the minimum required for launch.
- (3) Balloon operations will be planned so

that they will not traverse the airspace of any other sovereign nation without prior arrangement (see paragraph 7).

e. *Safety Devices.* The following safety requirements must be met in each balloon flight:

- (1) Provision for cut-down when the balloon fails to reach 44,000 ft. within 100 minutes.
- (2) Provision for cut-down at any time when the balloon descends to 44,000 ft.
- (3) Parachutes will be used to reduce descent rate to the point that hazard to persons or property on the ground will be minimized. In order to facilitate recognition by pilots, parachute canopies used for balloon operations shall be composed of white and international orange colored segments, alternately spaced. Where multiple parachutes are used, the color requirement may be complied with by using a combination of white and orange canopies.
- (4) During the period from official sunset to sunrise, the balloon and/or its attachments, while below 44,000 ft. shall display a flashing red light of 20 watts power with a flash frequency between 60 and 120 per minute. Each separate descending unit shall be so equipped. The light(s) shall be so placed as to be visible to any aircraft which could be on a collision course with the balloon and/or its attachments during ascent or the attachments during descent.

f. *Trajectory Forecast.* A qualified meteorologist will prepare a trajectory forecast and a termination area forecast (location, time and weather conditions) in advance of each balloon launch. These forecasts will be revised as necessary with the receipt of each balloon position report during the course of the balloon flight.

g. *Tracking.* All balloon flights will be tracked. For flights over or approaching the U. S., its territories or possessions, provisions will be made to provide the Federal Aviation Agency (FAA) with track notifications (see paragraph 5e) at two-hourly intervals throughout the balloon flight. Provision will be made for appropriate notification through the FAA Air Traffic Control Center when flights originating outside the U. S. approach ADIZ boundaries.

5. **Communications.** Pre-launch, launch, track, cut-down, airspace penetration, and impact notifications will be issued through the channels indicated on the approved operational plan. In the sub-paragraphs which follow, minimum communication requirements are specified. Local conditions and/or specific circumstances may make more stringent requirements desirable. The need for additional communications will be determined and fulfilled by local coordination between FAA personnel and the launching activity. In the event that satisfactory coordination cannot be achieved locally, the matter at issue shall be submitted to the appropriate Regional Airspace Subcommittee.

a. *Preliminary Notification.* At any appropriate time after 1200 of the day preceding launching, but not less than two hours in advance of launching, the launching activity will attempt to notify those airports within a radius of 25 miles of the launching site which do not have FAA communication facilities and which have been designated previously by the Regional Airspace Subcommittee as locations requiring notification of the intent to launch.

b. *Pre-launch Notification.* The launching activity will notify the designated FAA facility of the proposed launching 2 hours in advance of launching, providing at least the following information:

- (1) Balloon or flight identification number.
- (2) Location of launch.
- (3) Estimated launch time.
- (4) Forecast time of penetration of 44,000 ft level.
- (5) Forecast general direction from launching site of airspace involved in ascent of the balloon to 44,000 ft.

c. *Delay and/or Cancellation Notification.* The launching activity will notify the designated FAA facility of any delay in launch and will give a revised launch time. The amount of delay requiring issuance of the delay notification will be determined by local coordination between FAA personnel and the launching activity. Notification of flight cancellation will be transmitted immediately.

d. *Launch Notification.* The launching activity will notify the designated FAA activity of the completion of the launch within 30 minutes, or within a shorter time limit specified by local agreement between FAA personnel and the launching activity. The following information shall be transmitted:

- (1) Balloon or flight identification number.

- (2) Date and launch time (GCT).
- (3) Forecast direction of flight trajectory for first four hours of flight.
- (4) Forecast average speed in knots for first four hours of flight.
- (5) Cruising altitude.
- (6) Estimated date and time of cut-down (GCT).

e. *Track Notification:*

- (1) The activity designated for the transmission of track notifications will supply the designated FAA facility with the following information each two hours of the balloon flight:
  - (a) Balloon or flight identification number.
  - (b) Date and time of balloon position report (GCT).
  - (c) Cruising altitude.
  - (d) Balloon Position.
  - (e) Forecast direction of flight trajectory for four hours following position report time.
  - (f) Forecast average speed in knots for four hours following position report time.
  - (g) Date and time of cut-down (GCT).
- (2) The track notification 4 hours and 2 hours prior to cut-down time will include, in addition, the following information:
  - (a) Forecast location (as a circle \_\_\_\_\_ mile radius about a geographic position) and time (GCT) of penetration of the 44,000 ft level.
  - (b) Forecast location and time of impact (expressed as in paragraph (a) above).

f. *Impact Notification.* The activity designated for the transmission of track notifications will supply the designated FAA facility with a notification of the termination of the balloon flight immediately following impact. The impact notification may take one of the following forms:

- (1) Impact at \_\_\_\_\_. This notification (Time)  
is used when the impact has been observed or when the cut-down signal, telemetered increasing pressure or other positive signal indicates that the descent has commenced and the time interval has been such as to insure impact.
- (2) Assumed Impact at \_\_\_\_\_. This (Time)  
notification is used when, in absence of positive descent information, the

preset time of termination of flight has passed.

**6. Tracking Failure—NOTRAK.** Every effort will be exerted to insure compliance with the tracking requirements outlined in paragraph 4g. In the event of failure of the tracking system employed, tracking assistance will be sought from any possible source. If tracking failure results in the inability to give two consecutive position reports, the designated FAA facility will be notified of the loss of tracking. This notification is termed a NOTRAK. The NOTRAK will include the last known position of the flight and the forecast time and location of impact. If tracking can be re-established, the NOTRAK will be cancelled and normal reporting continued.

**7. Flights Entering Airspace of Sovereign Foreign Nation.** Balloon flights will be so planned that they will not penetrate foreign territory unless prior arrangements permitting such penetration have been made. In the absence of such arrangements, if the actual flights trajectory deviates from the forecast in such a way that penetration over foreign territory is probable, the designated FAA activity which handles tracking notification will be advised immediately.

a. The initial notification of penetration of the balloon over the foreign territory will include such information as will permit that nation to monitor the flight if it desires, e.g., frequency and time of transmission, time and place of penetration of foreign territory, balloon direction and speed, etc.

b. The same tracking and impact communication procedures will be followed whether the flight is over the United States or over any foreign country.

c. This communication requirement does not, in itself, authorize chase of balloon flights by tracking aircraft or mobile ground equipment beyond the borders of the United States. Appropriate foreign clearance directives apply.

**8. Reports Required.** Reports on all balloon flights subject to this regulation will be submitted as follows: Air Force RCS: AF-XOA-F1; Navy RCS: OP NAV 3710-1; Army RCS: CSGPo-181.

a. *DD Form 1267, "Balloon Flight Performance Report (GCT)."* Not later than the 15th of March and the 15th of September, a tabulation containing the following information about balloon flights launched during the six-month periods, September through February, March through August, respectively.

AFR 55-13  
AR 385-70  
OPNAVINST 3710.18A  
8-9

- (1) Balloon or flight identification number.
- (2) Launching date and time.
- (3) Pre-launch forecast of impact area and time.
- (4) Impact minus 4 hour forecast of impact position and time.
- (5) Impact minus 2 hour forecast of impact position and time.
- (6) Actual impact position and time.

b. Annually, on 15 September, an estimate of the number of flights governed by these regulations which will be made during the next calendar year will be prepared and accompany the performance report.

c. These reports will be sent as follows:

- (1) USAF: To Hq USAF, (AFOOP), Wash. 25, D. C.
- (2) USA: Chief, Army Aviation Flight Information Office, Office of Chief Signal Officer, Washington 25, D. C.

- (3) USN: Chief, Naval Operations, Naval Weather Service Division (OP 58) Navy Dept, Washington 25, D. C.

d. DD Form 1267 will be reproduced locally on 10½" x 8" paper, in accordance with attachment 2 to this regulation.

#### 9. Miscellaneous:

a. *Waivers.* The rules and procedures outlined above shall govern normal operations of free balloons. Wherever it is necessary in the national interest to conduct balloon operations under conditions other than those prescribed above, those sections or subsections which cannot be complied with shall be clearly indicated on the proposed plan of operations prior to submission in accordance with paragraph 3a.

b. *Over International Waters.* Nothing in this Instruction is intended to curtail or restrict an operational commander in the proper conduct of operations for which higher authority holds him responsible, provided "due regard" is accorded other airspace users.

BY ORDER OF THE SECRETARIES OF THE AIR FORCE, THE ARMY, AND THE NAVY:

OFFICIAL:

J. L. TARR  
Colonel, USAF  
Director of Administrative Services

THOMAS D. WHITE  
Chief of Staff, United States Air Force

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MAXWELL D. TAYLOR  
General, United States Army  
Chief of Staff

OFFICIAL:

K. M. McMANES  
Rear Admiral, United States Navy  
Assistant Vice Chief of Naval Operations/  
Director of Naval Administration

ARLEIGH BURKE  
Chief of Naval Operations

#### 2. ATTACHMENTS:

1. Information To Be Submitted in Accordance with Paragraph 3.
2. DD Form 1267, 1 April 1959, Balloon Flight Performance Report (GCT).

#### DISTRIBUTION:

Air Force: B  
Active Army: D

To be distributed as needed to Headquarters of Department of the Army Staff Agencies, Headquarters Army Audit Agency and field office, Headquarters of Major Commands.

NG: State AG (3)  
USAR: None

INFORMATION TO BE SUBMITTED IN ACCORDANCE WITH PARAGRAPH 3

- I 1. Sponsoring activity
- 2. Project and contract number
- 3. Launching activity
- 4. Preliminary coordination with local Air Traffic Control Authority
- 5. Period of planned operation (dates)
- 6. Activity responsible for submission of Performance and Program reports.
- II 1. Launch area
- 2. Nature of flights—size of balloon, weights (total, unit weights, etc.), rate to ascent, balloon material and construction, duration of flights, floating altitude, period of day in which launching and descent will be planned, rate of descent, method of compliance with safety regulation.
- 3. Probable impact areas
- 4. Planned number and frequency of flights
- III 1. Tracking procedure
- 2. Tracking agency
- 3. Procedure for initiating pre-launch and launch notification (originator, recipient and method).
- 4. Procedure for issuing track notification (originator, recipient and method).
- 5. Procedure for issuing cut-down, penetration and impact notification (Originator, recipient, method).

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BALLOON FLIGHT ID NUMBER	IMPACT (Minus two hour forecast)		ACTUAL IMPACT		REMARKS ;
	Position	Date and time	Position	Date and time	

DD FORM 1267, 1 APR 59

Page 2 of 2 Pages

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1